

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

Claim 1 (currently amended): An apparatus for charging a battery of a portable electronic device connected to a computer [[by]] USB port, the apparatus [[by]] transferring power from the computer through the USB port, the apparatus comprising:

 a control portion to generate charge control signals corresponding to a battery selected according to a battery selection signal that is externally input; and

 a charging portion to charge the selected battery according to the charge control signals from the control portion.

Claim 2 (original): The apparatus of claim 1, wherein the charge control signals of the control portion comprise a charge start signal to enable output of the charging portion.

Claim 3 (original): The apparatus of claim 1, wherein the charge control signals of the control portion comprise a battery type signal to control an output voltage level according to the battery selection signal.

Claim 4 (original): The apparatus of claim 1, wherein the charge control signals of the control portion comprise a charge voltage control signal and a charge current control signal, which are generated based on the detection of a charge current and a charge voltage from the charging portion, to control the charge current and the charge voltage.

Claim 5 (currently amended): The apparatus of claim 1, wherein the USB battery charger further comprises a USB control portion is a main controller [[of]] for controlling bidirectional data transmission between the computer and the portable electronic device.

Claim 6 (original): The apparatus of claim 1, wherein the battery selection signal is input by a user.

Claim 7 (original): The apparatus of claim 1, wherein the battery selection signal is input by a battery recognition apparatus.

Claim 8 (original): A digital camera connected to a computer by USB to charge a battery by receiving power from the computer through USB, the digital camera comprising:

a USB charger including a USB controller to transmit and receive data through a USB port of the computer, a control portion to generate charge control signals corresponding to a battery selected according to a battery selection signal that is externally input, and a charging portion to charge the selected battery according to the charge control signals from the control portion;

- a charging portion to charge at least one among the various types of batteries;
- a control portion to control a charging operation of the charging portion;
- a main controller to transmit and receive data with the USB controller; and
- a power converting portion to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels.

Claim 9 (original): The digital camera of claim 8, wherein the charge control signals of the control portion comprise a charge start signal to enable output of the charging portion.

Claim 10 (original): The digital camera of claim 8, wherein the charge control signals of the control portion comprise a battery type signal to control an output voltage level according to the battery selection signal.

Claim 11 (original): The digital camera of claim 8, wherein the charge control signals of the control portion comprise a charge voltage control signal and a charge current control signal which are generated by receiving a charge current and a charge voltage from the charging portion to control the charge current and the charge voltage.

Claim 12 (new): An apparatus for transferring power from a USB port to a portable electronic device with a power and data port, a battery and a device controller, the apparatus comprising:

- a first connector configured to mate with the USB port;
- a second connector configured to mate with the power and data port;
- a cable that interconnects the first and second connectors; and
- a USB battery charger configured in the second connector, the USB battery charger including a charging portion that communicates with the device controller for receiving at least one signal relative to the battery, the charging portion adjusting power received from the USB port relative to the at least one signal for charging the battery.

Claim 13 (new): The apparatus of claim 12 wherein the USB battery charger further comprises a control portion in communication with the charging portion, the control portion

receiving the at least one signal from the device controller and outputting at least one charge control signal relative to the at least one signal.

Claim 14 (new): The apparatus of claim 13 wherein the control portion comprises a PWM module for outputting at least one of a voltage control signal and a current control signal.

Claim 15 (new): The apparatus of claim 13 wherein the control portion comprises the device controller.

Claim 16 (new): The apparatus of claim 13 wherein the USB battery charger further comprises a USB controller for controlling bidirectional data transmission between the USB port and the device controller.

Claim 17 (new): The apparatus of claim 12 wherein the USB battery charger further comprises a USB controller for controlling bidirectional data transmission between the USB port and the device controller.

Claim 18 (new): The apparatus of claim 17 wherein the cable comprises:

- a first portion that interconnects a data interface of the first connector with the USB controller; and

- a second portion that interconnects a power interface of the first connector with the charging portion.

Claim 19 (new): The apparatus of claim 18 wherein the first portion comprises a twisted-pair cable.

Claim 20 (new): The apparatus of claim 13 wherein the charging portion comprises:

- a linear regulator for outputting power to the control portion;

- a reference voltage generating portion for adjusting a voltage charging the battery;

and

- a voltage/current regulator including an attenuator, a current sense amplifier, a voltage regulation loop compensator and a current regulation loop compensator.